Total Liquid Ventilation: A Bioengineering Partnership

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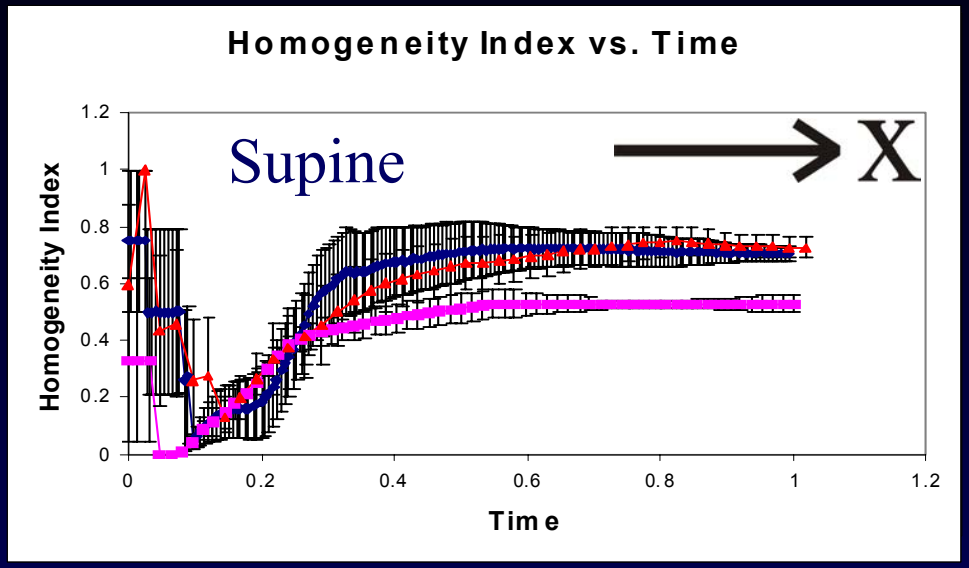
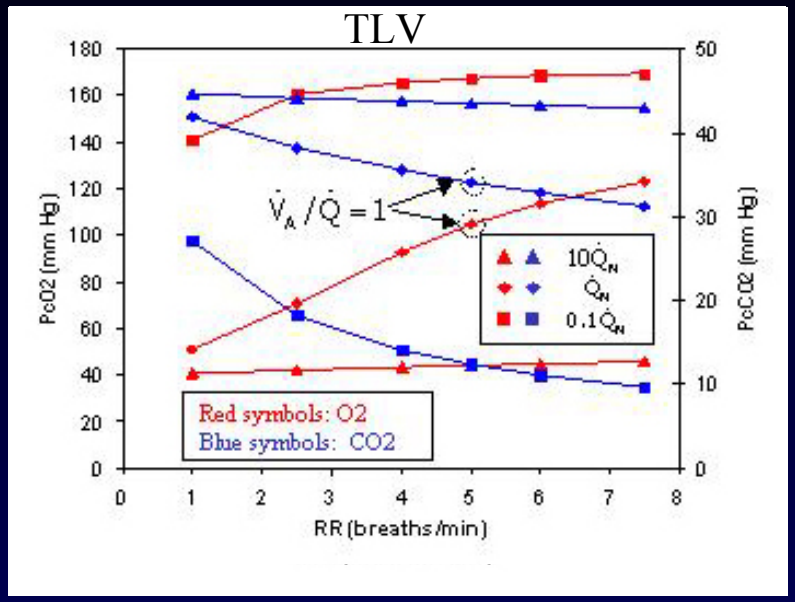
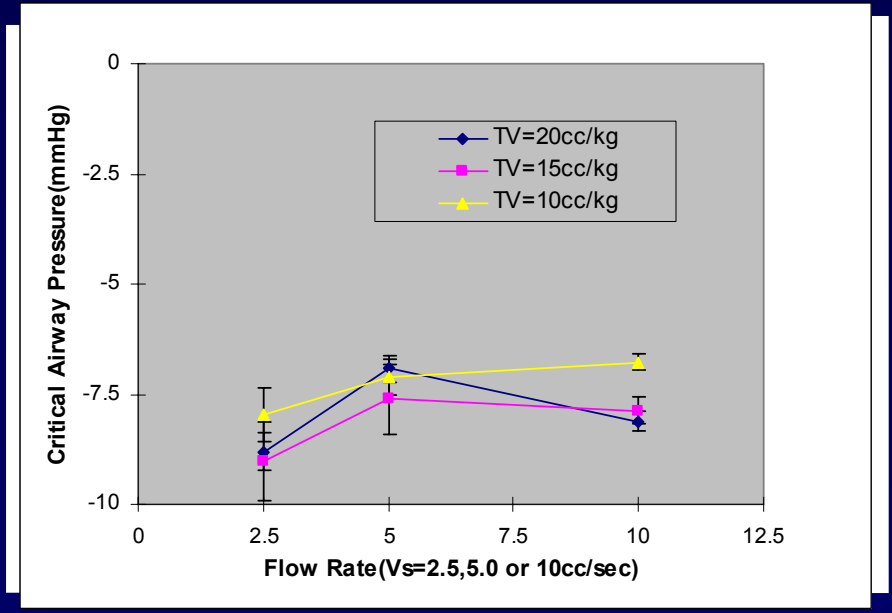
Research Partnership

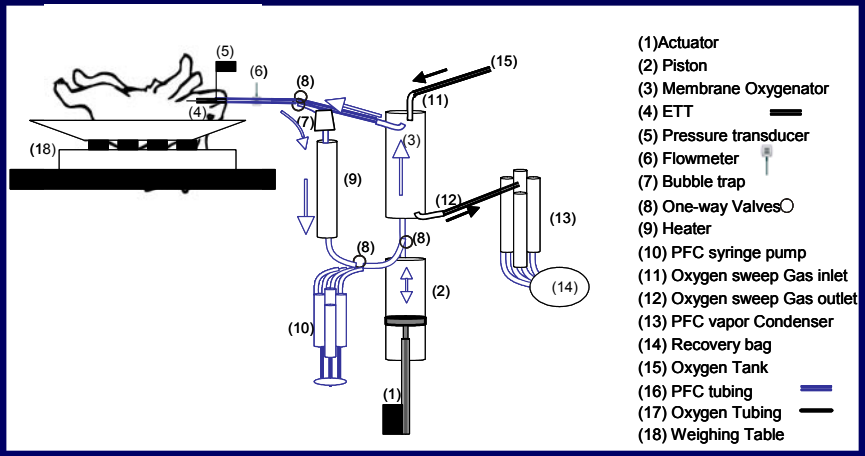
- Ronald B. Hirschl, M.D., and James Grotberg, M.D.
- Two MD fellows and two bioengineering graduate students
- One junior bioengineering faculty in both labs
- Frequent BRP joint laboratory meetings for data presentation/discussion
- Led to extension of joint expertise to 1) Total Artificial Lung and 2) Artificial Placenta

Current Research









Future Work

Choked Flow

- Effect of choked flow on airway injury
- Optimizing flow during drainage
- Effect of alteration of bronchial tone
- How to determine when choke is going to occur and how to servoregulate the ventilator

Gas exchange in alveolar model

- Cycle in LV as compared to GV
- Effect of dwell time

Development of TLV

- Optimizing the gas exchanger in the liquid ventilator
- Development of endotracheal tubes for TLV

Animal Studies

- Studies in lung-injured sheep